

## **REMARKS**

Claims 1-35 were pending in the above identified application. Claims 22-35 have been withdrawn in response to a restriction requirement. The Examiner rejected claims 1-21. The Examiner rejected claims 10-16 and 21 under 35 U.S.C. § 112, second paragraph as allegedly indefinite. The Examiner rejected claims 1 and 3-5 under 35 U.S.C. § 102(b). The Examiner rejected claims 2-8 under 35 U.S.C. § 102(b) or in the alternative under 35 U.S.C. § 103(a), and also rejected claims 9-19 and 21 under 35 U.S.C. § 103(a). The Examiner did not specify under which section claim 20 was rejected. Applicant has canceled claim 2 and amended claims 1 and 3-21 to clarify the invention. Thus, claims 1 and 3-35 are currently pending.

### **Objection to the Specification**

The Examiner objected to the disclosure, due to multiple references to a plurality of numerals, and required correction. Applicant amends the specification to remove reference to the numerals and to correct typographical errors in the as-filed specification. No new matter has been added.

### **Rejections under 35 U.S.C. § 112**

The Examiner rejected claims 10-16 and 21 under 35 U.S.C. § 112, second paragraph as being allegedly indefinite. Applicant has amended claims 10-16, as well as claim 9. These clarifying amendments make clear that "the die face," which is a part of the molding die, "comprises a plurality of protrusions or a plurality of hollows," see claim 1 as amended. Claims 10-16 as amended specify further descriptions regarding the plurality of protrusions or the plurality of hollows. Applicant has also amended claim 21 to make clear that "the amorphous alloy comprises at least one of" the elements

recited therein. Applicant respectfully requests the Examiner to withdraw the rejection and allow the claims as amended.

### **Rejections under 35 U.S.C. § 102**

The Examiner rejected claims 1 and 3-5 under 35 U.S.C § 102(b). Specifically, claim 1 was rejected as allegedly anticipated by three separate references: U.S. Pat. No. 5,700,307 to Kashiwagi et al. ("Kashiwagi I"), JP 06-144850 to Umetani ("Umetani I"), and JP 06-186755 also to Umetani ("Umetani II"). Applicant believes the Examiner meant JP 06-183755 to Umetani, as that is the reference provided that most closely matches the Examiner's description, and proceeds on that basis. Claims 3 and 4 were rejected as allegedly anticipated by Umetani I and II. Claim 5 was rejected as allegedly anticipated by Umetani II. Applicant respectfully traverses these rejections.

In alleging that Kashiwagi I anticipates claim 1, the Examiner relied on Example 5 of Kashiwagi I. Claim 1 is directed to "[a] molding die for molding an optical element," and recites, *inter alia*, "a die base body consisting of an amorphous alloy having a super-cooled liquid phase." Kashiwagi I does not disclose or suggest at least that element of claim 1. Kashiwagi I discloses a die for press-molding optical elements. The die "includes a base material having high strength on which a cutting layer having high heat resistance and free cutting machinability is formed." Kashiwagi I Abstract. In the die for press-molding an optical elements of Example 5, a cutting layer 12 of an amorphous binary alloy comprising Ni, CO, CR, TN, Mo, Ti, W, Nb, V, or Cu is sputter coated onto a cemented carbide base material 13 at a thickness of about 15  $\mu\text{m}$ , and a thinner (3  $\mu\text{m}$ ) protective layer of Pt-Ru alloy is sputter coated on the amorphous binary alloy cutting layer 12. Col. 17, line 39 – Col. 19, line 33. Fig. 6 of Kashiwagi I shows

the cross-section of a die constructed as described in Example 5, with reference numeral 61 denoting the protective layer, reference numeral 62 denoting the cutting layer, and reference numeral 63 denoting the base material.

Thus, the Kashiwagi I die consists of a die base and one or two separate layers on the surface of the die base. Different materials form the die base and the separate layers. The 15  $\mu\text{m}$  thick layer of amorphous binary alloy cited by the Examiner, cannot function separately from the disclosed die base material of cemented carbide. Only the base material prevents deformation under the forces necessary to press mold an optical element. A 15  $\mu\text{m}$  thick layer alone would easily deform.

Umetani I and II each disclose a die for press-molding an optical element similar to Kashiwagi I in that each disclosed die comprises a die base material with a thin film formed on the press surface of the die base material. Although the thin film is an amorphous alloy, it is a different material from the base material. See Umetani I and Umetani II machine translations of abstracts. Here, like in Kashiwagi I, the amorphous alloy does not function in the die separately from the die base material.

Further, none of the three references disclose or suggest an amorphous alloy "having a super-cooled liquid phase." Specifically they are silent about the characteristics of the amorphous alloy except that Kashiwagi I in Example 5 lists several possible combinations for the amorphous binary alloy used for the cutting layer, col. 17, line 39 through col. 18, line 4, Umetani I discloses "[a]n amorphous alloy thin film containing one or more kinds of Pt, Rh, Ir, Ru, Re, Ta or Os," see machine translation of abstract, and Umetani II discloses the alloy film may comprise Pt, Rh, Ir, Ru, Re, W, Ta or Os, see machine translation of claim 3. Moreover, Kashiwagi I teaches forming

the cutting layer of amorphous alloy by plating, evaporation, sputtering, or an ion plating method. Col. 3, lines 5-7. Umetani I teaches forming its cutting layer (thin film) of amorphous alloy by sputtering. See machine translation of paragraph 13. Umetani II also teaches forming its thin film of amorphous alloy by sputtering. See machine translation of abstract and paragraph 15. The high temperatures required for such processes do not suggest the use of "amorphous alloys having a super-cooled phase."

App., Claim 1.

As a result, Kashiwagi I, Umetani I, and Umetani II neither disclose nor suggest at least "a die base body consisting of an amorphous alloy having a super-cooled liquid phase." As none of the references discloses each and every element of claim 1, Applicant respectfully requests that the Examiner withdraw the rejection and allow claim 1.

Claims 3-5 as amended each depend directly or indirectly from claim 1. Thus they are patentable over Kashiwagi I, Umetani I, and Umetani II for at least the same reasons that claim 1 is patentable over those references. Applicant respectfully requests that the Examiner withdraw the rejection and allow the claims.

### **Rejections under 35 U.S.C. § 103**

The Examiner rejected claims 2-8 under 35 U.S.C. § 102(b) or in the alternative under 35 U.S.C. § 103(a) citing Kashiwagi I, Umetani I, and Umetani II.

As already mentioned, claim 2 has been canceled. As Applicant has presented above, the die of claim 1 as amended, is structurally distinct from the dies of the applied references. Applicant again submits that claims 3-5 are patentable over the applied references as discussed above. Claims 6-8 also depend directly or indirectly from claim

1, and thus they are patentable over the applied references for at least the same reasons as claim 1. Applicant respectfully requests that the Examiner withdraw the rejections and allow the claims.

The Examiner also rejected claims 9-19 and 21 under 35 U.S.C. § 103(a) as being obvious over Kashiwagi I, Umetani I or II in further view of U.S. Pat. No. 5,405,652, to Kashiwagi et al ("Kashiwagi II"). The Examiner acknowledged that none of Kashiwagi I, Umetani I, and Umetani II disclosed "a die face mold having a plurality of protrusions, which would consequently be formed on the optical element," and relied on Kashiwagi II to provide a reference disclosing a plurality of protrusions. Office Action, page 7. Each of claims 9-21 depend directly or indirectly from claim 1.

Kashiwagi II discloses "a method of manufacturing optical elements having a fine concave and convex pattern on a surface of each optical element." Kashiwagi II, col. 1, lines 46-48. The method of Kashiwagi II uses a die comprising "a base made of a high strength and heat resistant material for forming a press plane; and a work layer formed on the press plane of said base which is made of a noble metal alloy and forms a concave and convex pattern corresponding to the concave and convex pattern of the optical element to be press-molded." Col. 1, lines 59-65. Kashiwagi II further specifies the base material is preferably "cemented carbide (hard metal) containing tungsten carbide WC as a main component." Col. 2, lines 57-61. Thus, Kashiwagi II discloses a die for press-molding an optical element, but like Kashiwagi I, Umetani I, and Umetani II, does not disclose or suggest "a die base body consisting of an amorphous alloy having a super-cooled liquid phase." Accordingly, Kashiwagi II does not cure the failure of Kashiwagi I, Umetani I and Umetani II to disclose or suggest each and every element

of independent claim 1 and dependent claims 9-21. Therefore Applicant respectfully requests that the Examiner withdraw the rejection and allow the claims.

## Double Patenting Rejection

The Examiner provisionally rejected claims 1-8 under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 2-3 and 8 of copending Application No. 10/079,496, now U.S. Patent No. 6,766,999. Applicant will file a terminal disclaimer, if required, if at least one of claims 1 and 3-8 is noted as being otherwise allowable by the Examiner.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: August 6, 2004

By:

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**Attachments:**      **Attachment A:** **Marked up version of specification showing changes**  
                            **Attachment B:** **Clean version of substitute specification**

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